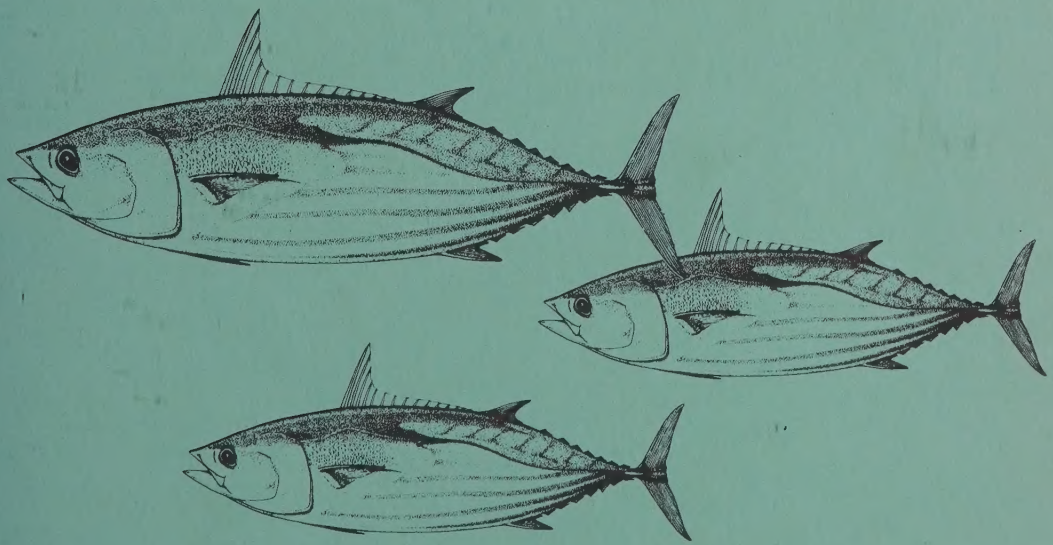
JULY 1978
No. 7

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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FISHING INFORMATION

JULY 1978, No. 7

EDITOR: JAMES A. RENNER

I. Barrett, Director, SOUTHWEST FISHERIES CENTER
J. Carr, Deputy Director

PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

To cancel delivery of this publication in the event you no longer need to receive it, or to change the delivery address if you are moving but still need to receive it, please notify us by writing: James A. Renner, Editor, Fishing Information, National Marine Fisheries Service, Southwest Fisheries Center, P. O. Box 271, La Jolla, California 92038.

Submitted for publication - August 23, 1978

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15 day Supplement)

TECHNICAL EDITOR:
R. Allen
CARTOGRAPHY:
R. Allen, H. Orr

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National Ocean Survey, Pacific Marine Center, Seattle, Washington

Fisheries Research Board of Canada, Pacific Environment Institute, West Vancouver, British Columbia by L. F. Giovando from observations by:
J. Redhead at Langara Island Light; C. T. Hilliar at Cape. St. James Light;
L. Collins at Kains Island Light; M. V. Stewart at
Amphitrite Point Light

Scripps Institution of Oceanography, La Jolla, California

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Hawaiian Queen* of the Matson Navigation Co. The data are processed under supervision of D. R. McLain at the NMFS Pacific Environmental Group, Monterey, California, using computer facilities of the Fleet Numerical Weather Central, Monterey. The project is partially supported by the National Science Foundation and the Office of Naval Research.

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During July sea surface temperatures (SST's) normally increase over most of the North Pacific in response to increased solar heating. However, the eastern Pacific high pressure system, with an 18 year mean position near 38°N, 155°W (Figure 1), often generates strong northerly winds along the U.S. west coast between 35°N and 45°N. These strong northerly winds intensify coastal upwelling, and SST's along the coast are colder in this area as a result.

During July 1978 the eastern Pacific high pressure center (Figure 2) was located northeast of its mean position, and frequently during the month a high pressure ridge extended into the U.S. west coast over Washington and Oregon. As a result, stronger than normal surface winds prevailed along the coast from Cape Mendocino to Monterey Bay and westward to 130°W. The persistent strong winds along southern Oregon and northern California coasts confined albacore fishing to the U.S. northwest and southern California areas.

Along the coast of California SST's were cold (Figure 3) as a result of persistent and intense upwelling. From 35°N to 40°N negative SST departures along the coast were greater than 1°C (Figure 5). Offshore, SST's were also colder than normal. From 28°N to 37°N between 140°W and 162°W the SST was more than 1°C below normal (Figure 5) as a result of higher than normal pressure north of 30°N and above normal easterly winds along the southern periphery of the eastern Pacific high. North of 40°N and west of 150°W SST's were more than 1°C below normal. These departures were caused by strong westerly winds and heavy cloud cover associated with transitory weather fronts which increased ocean mixing and reduced seasonal heating.

The North Pacific oceanic front was strong in July only between 40°N and 43°N, west of 160°W where negative SST departures from normal were more than 1°C. East of 150°W and north of 45°N a positive SST departure resulted from the persistence of the high pressure ridge which reduced surface winds and cloud cover in the area. South of 27°N between Baja California and 145°W SST's were 1 to 3°C above normal (Figure 5) and also significantly warmer than in July 1977 (Figure 7). These positive SST departures which developed in June, expanded in July in areas adjacent to eight tropical storm tracks which moved northwest through the tropical fishing grounds during the two months. The tropical storms moved along similar paths in July because of the displacement of the eastern Pacific high northeastward and the establishment of a weak upper atmospheric pressure trough off the coast of California.

Western North Pacific

A larger than normal subtropical high pressure system dominated the surface wind circulation over the western Pacific from 25°N to 40°N and surface pressures were 2 to 4 millibars above normal in a large area from 35°N to 45°N. As a result, SST's warmed at above normal rates and produced positive SST departures from normal (Figure 6) over a large area east of Japan where southerly surface winds aided in transporting warm water northward, along and east of the Kuroshio (Japanese) Current. East of 160°E between 40°N and 50°N negative SST departures from normal persisted where strong surface winds caused extensive ocean mixing along the northwest periphery of the subtropical high pressure system. The North Pacific oceanic front was best defined (Figures 4 and 6) in those areas where positive SST departures from normal were near areas with negative departures. The subtropical areas with negative SST departures from normal south of 30°N were associated with stronger than normal surface winds along the northern side of tropical storm paths.

Eastern Tropical Pacific

During June in the northern hemisphere, seasonal warming takes place in most areas with a maximum increase along the southwest coast of Baja California from 20°-25°N. Between 5° and 15°N and from 90° to 110°W some cooling normally occurs where southerly winds intensify the ocean mixing in the surface layer. Several tropical storms (chubascos) usually form in this area in June and

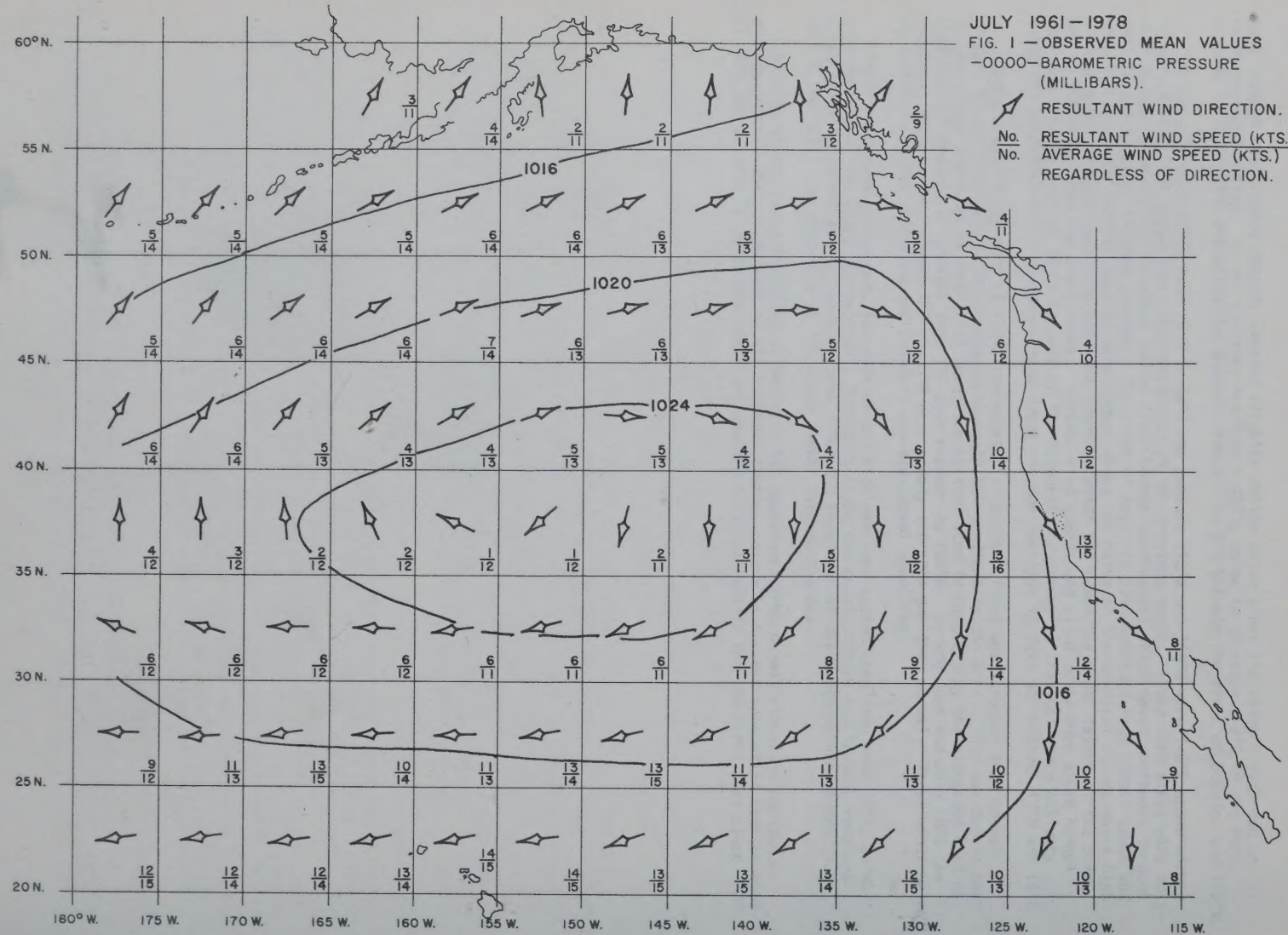
pass through the fishing grounds leaving slightly cooler water along the storm's path due to extensive wind mixing. In the southern hemisphere SST's normally decrease 1-2°C in the Peru Current north of 20°S and along the equator from 5°S to 2°N between the coast of Ecuador and 115°W.

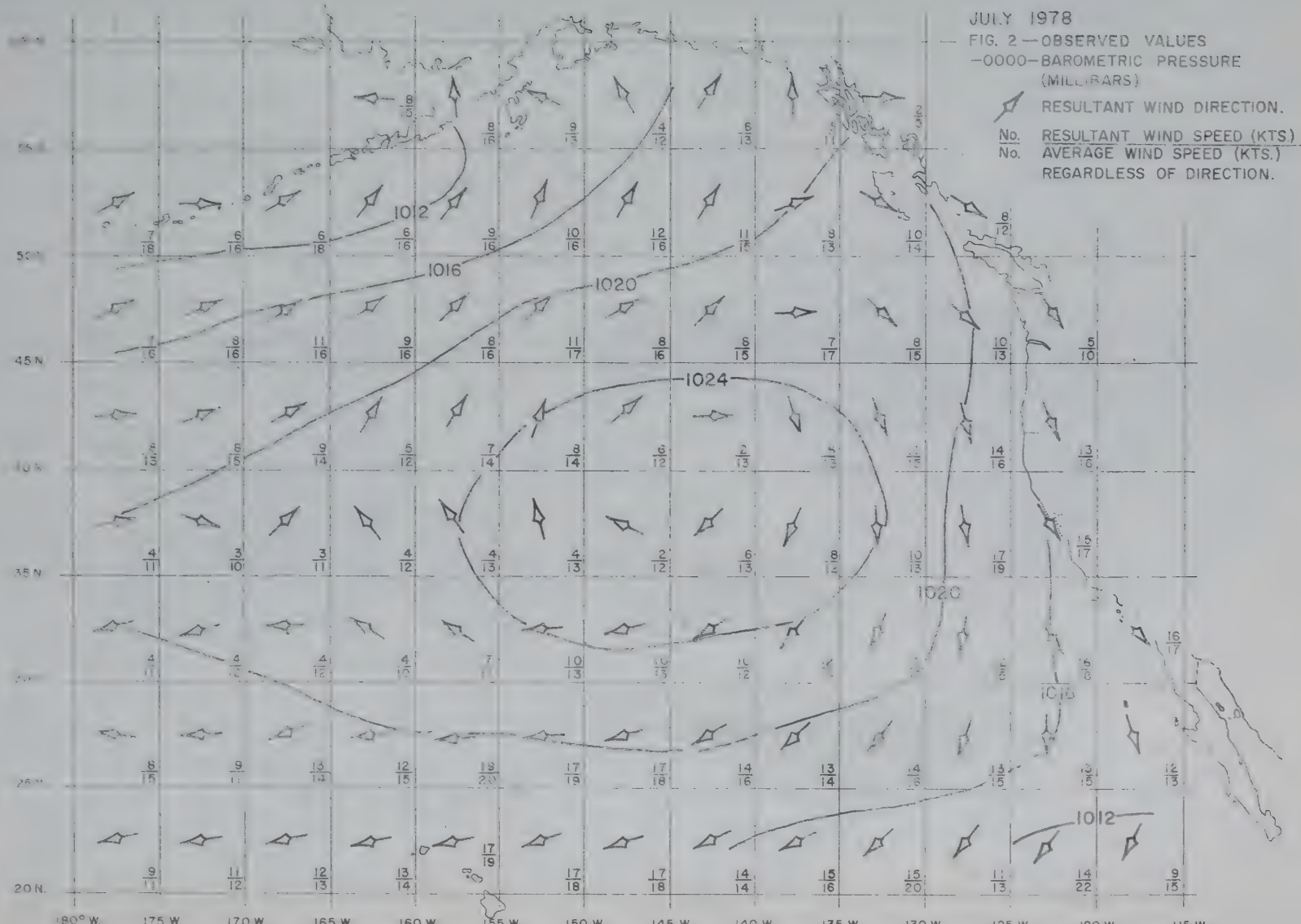
During July 1978 SST's from 15°N to 30°N and between 115°W and 140°W were 1-2°C above normal (Figure 9) over two large areas that developed in the previous month. These warm areas were adjacent to the paths of five tropical storms (four became hurricanes) which moved northwest through part of the tropical fishing grounds. The areas of negative SST departure from normal south and west of Mexico and Central America were formed along the paths of the tropical storms where high surface winds induced upwelling near the storm's center and mixed the upper layers of the ocean out to 200 miles from the storm track. Surface wind speeds and cloud cover were above normal over the tropics east of 140°W because of the frequent and extensive tropical storm activity along the intertropical convergence zone whose average location in July was between 10°N and 15°N.

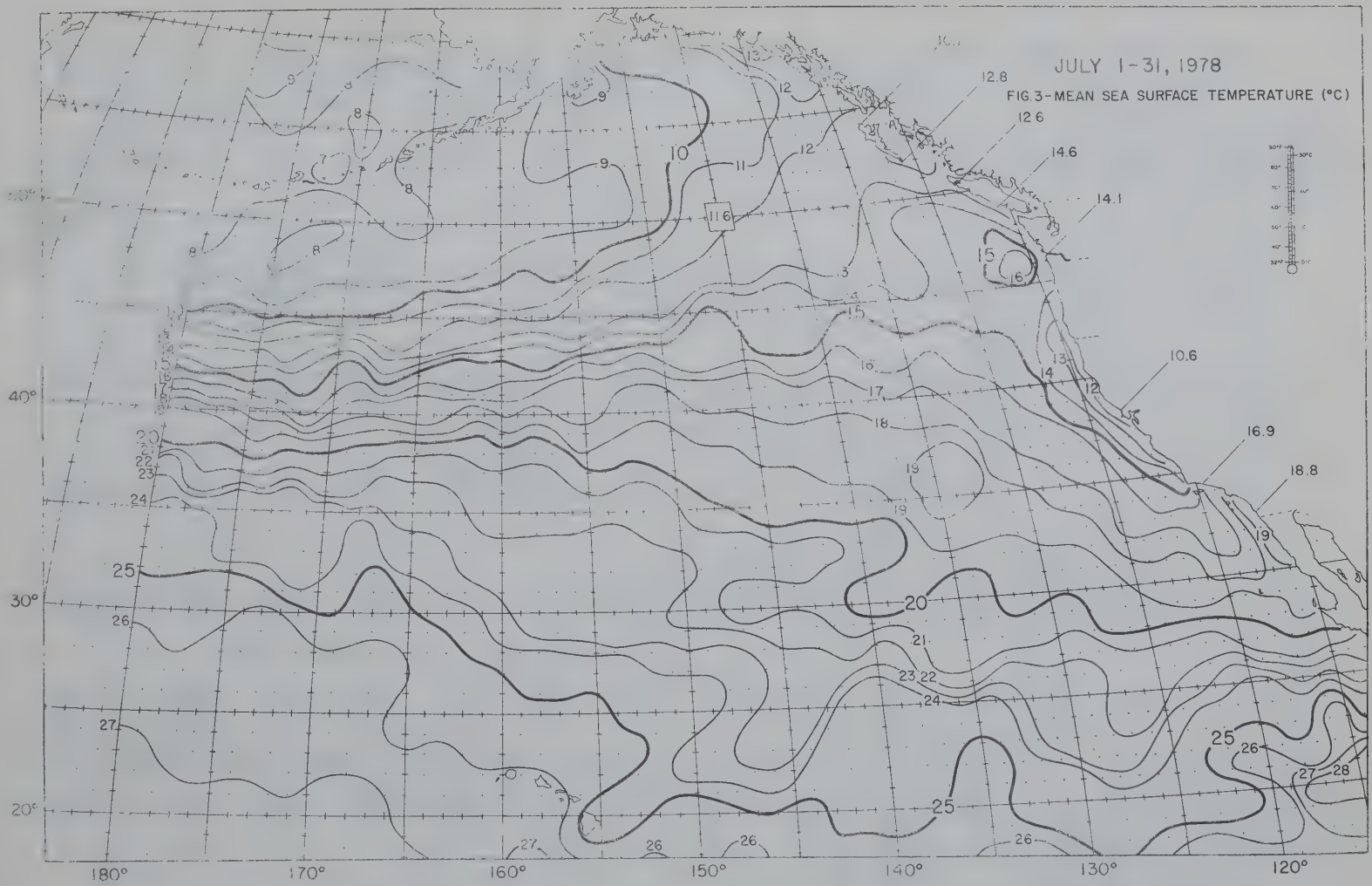
From 2°S to 3°N and east of 120°W the equatorial oceanic front was stronger than normal (Figure 8) as indicated by the strong north-south SST gradient in the area. This was due in part to the marked increase in equatorial upwelling as indicated in Figure 9 by the elongated band of negative SST departures greater than 1°C from Ecuador to 150°W. During June and July 1978 the southeast trade winds between 5°S and 5°N were steady and stronger than normal. These winds helped to maintain coastal (off Peru and Ecuador) and equatorial upwelling.

In the southern hemisphere, the subtropical high pressure system (centered near 30°S, 90°W) was near normal for July. Consequently the SST's along the coast of Peru and Ecuador remained slightly below normal as they were in June. For the remainder of the southern hemisphere south of 5°S the SST's were from 0.5 to 1°C above normal over most areas.

Because of the rapid expansion of negative SST departures from normal along the equator and near normal SST's over most of the southern tropics, there is a clear indication that an anti-El Niño SST pattern is developing over the eastern tropical Pacific for the first time since 1973.

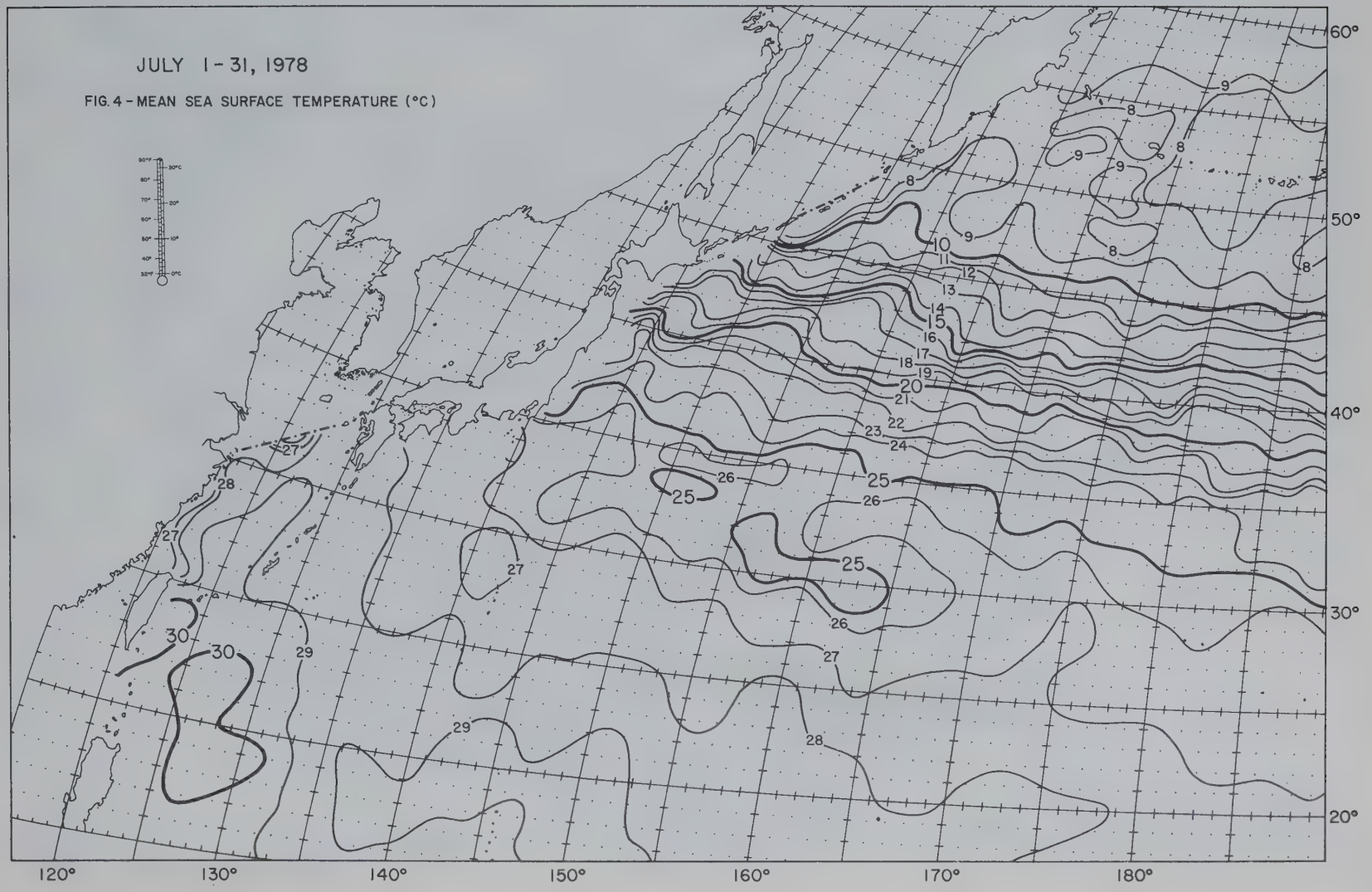

JULY 1961 – 1978
FIG. 1 – OBSERVED MEAN VALUES
–0000– BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1016
1020
1024
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

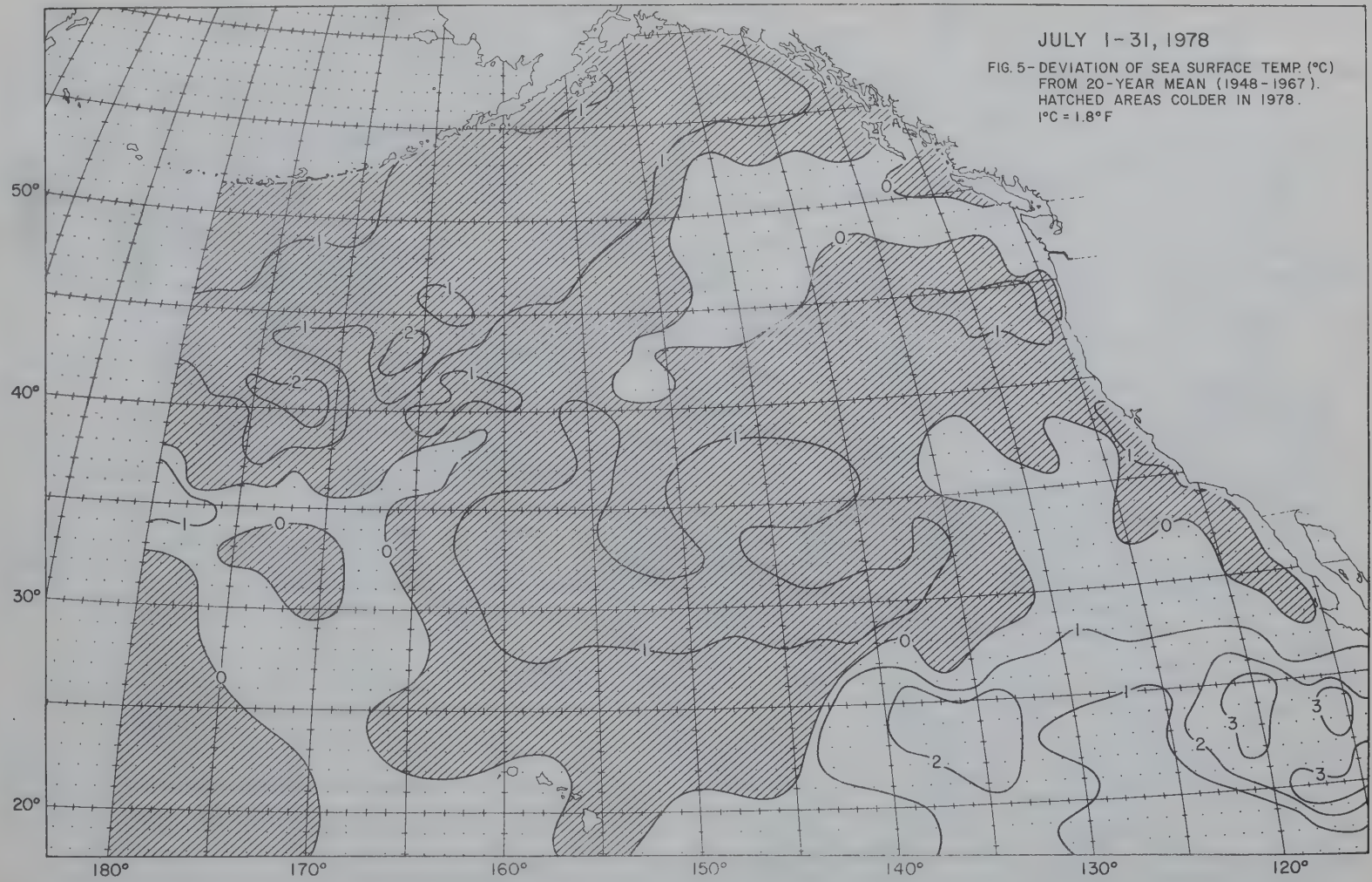

JULY 1978
FIG. 2—OBSERVED VALUES
—0000—BAROMETRIC PRESSURE (MILLIBARS)
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1012
1016
1020
1024
1020
1016
1012
45 N
35 N
20 N.
180° W.
175 W.
170 W
165 W.
160 W
155 W
150 W.
145 W
140 W
135 W.
130 W.
125 W.
120 W
115 W.

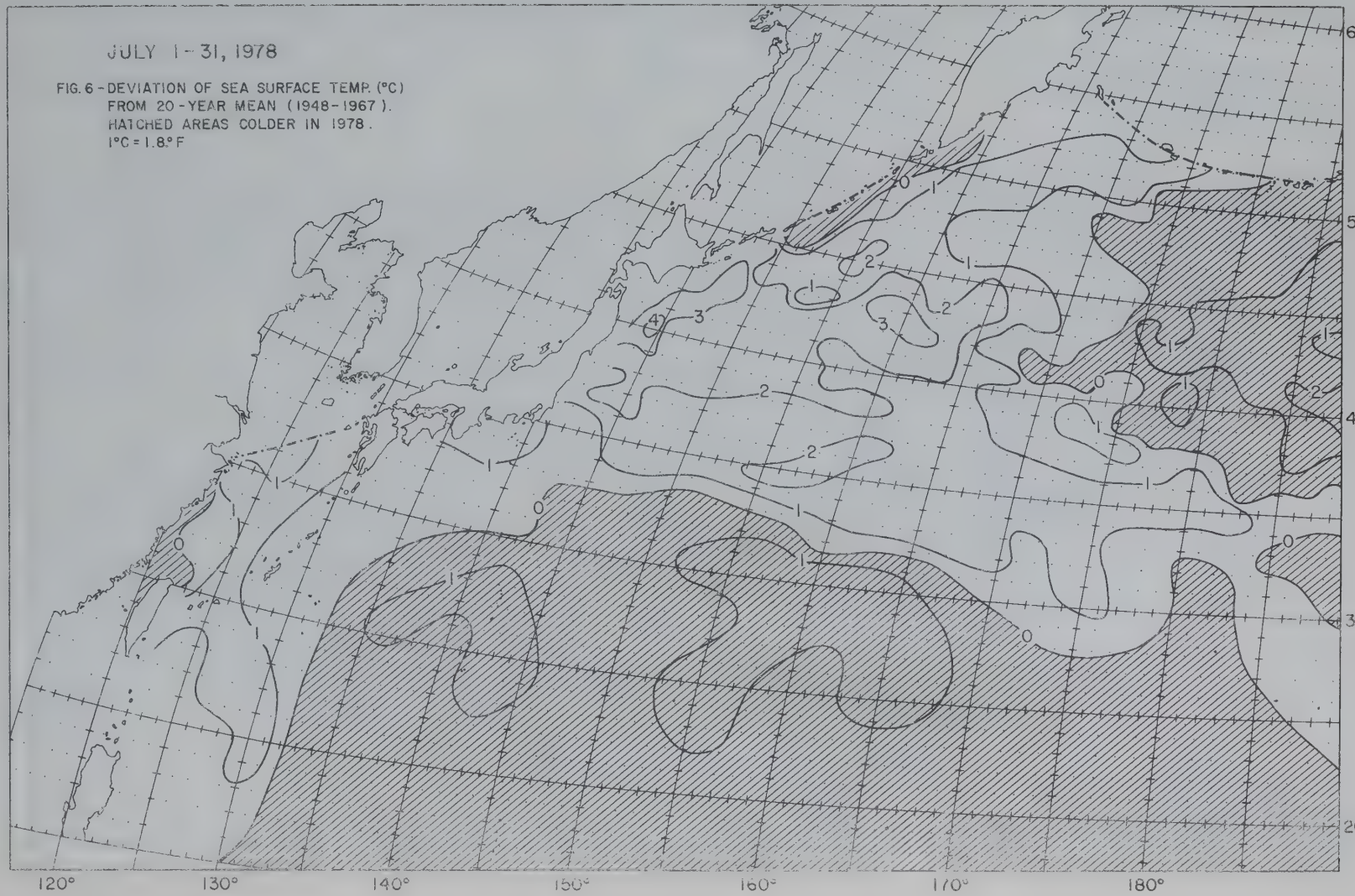

JULY 1-31, 1978
FIG. 3-MEAN SEA SURFACE TEMPERATURE (°C)
12.8
12.6
14.6
14.1
10.6
16.9
18.8
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°

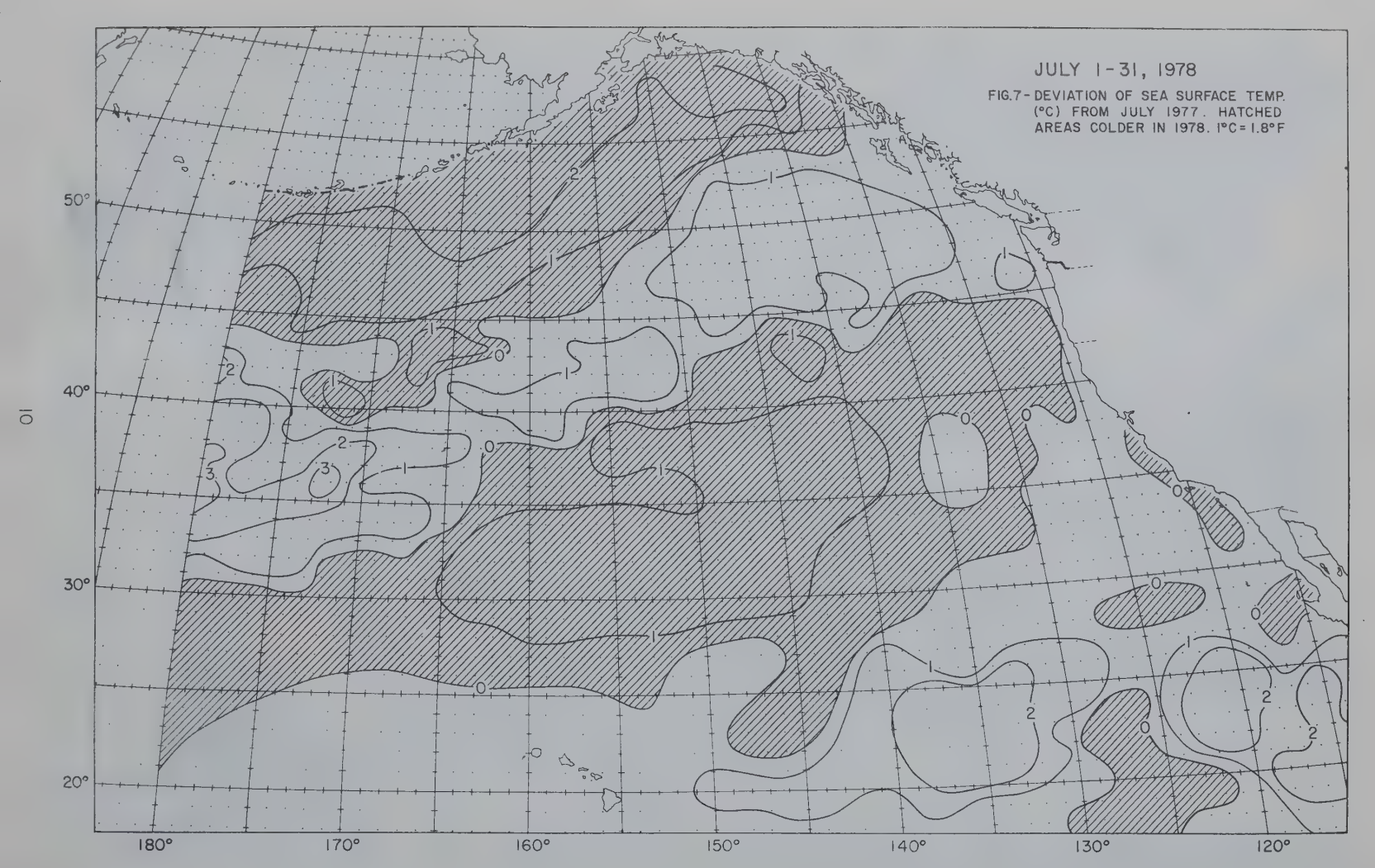
JULY 1 - 31, 1978

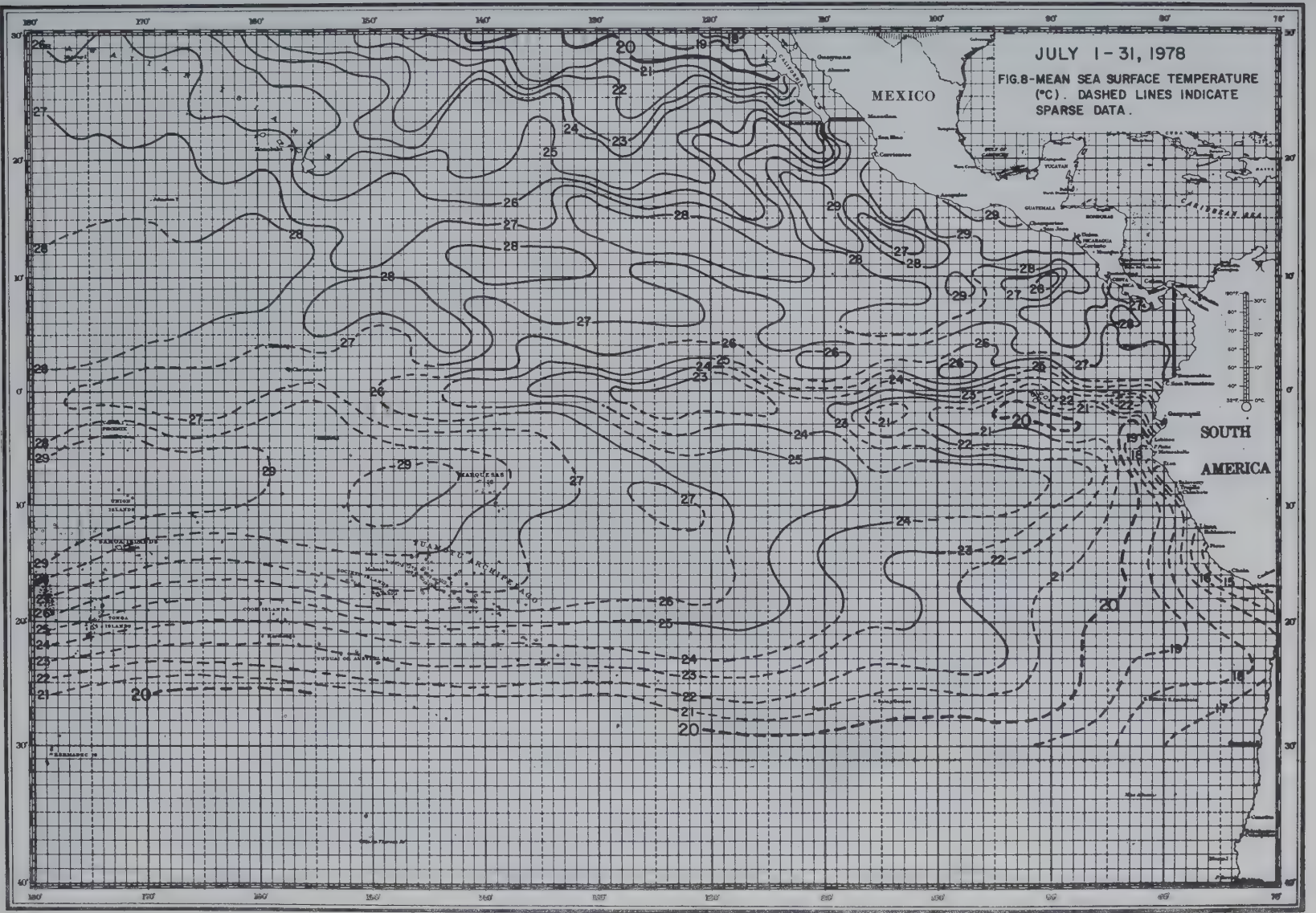
FIG. 4 - MEAN SEA SURFACE TEMPERATURE (°C)




JULY 1-31, 1978
FIG. 5- DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1978.
1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JULY 1 - 31, 1978
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20 - YEAR MEAN (1948 - 1967). HATCHED AREAS COLDER IN 1978. 1°C = 1.8° F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


JULY 1-31, 1978
FIG.7- DEVIATION OF SEA SURFACE TEMP. (°C) FROM JULY 1977. HATCHED AREAS COLDER IN 1978. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


JULY 1 - 31, 1978
FIG.8-MEAN SEA SURFACE TEMPERATURE (°C). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
YUCATAN
MARQUESAS
TUAMOTU ARCHIPELAGO
UNION ISLANDS
FANNING ISLAND
COOK ISLANDS
TONGA ISLANDS
BERMUDA

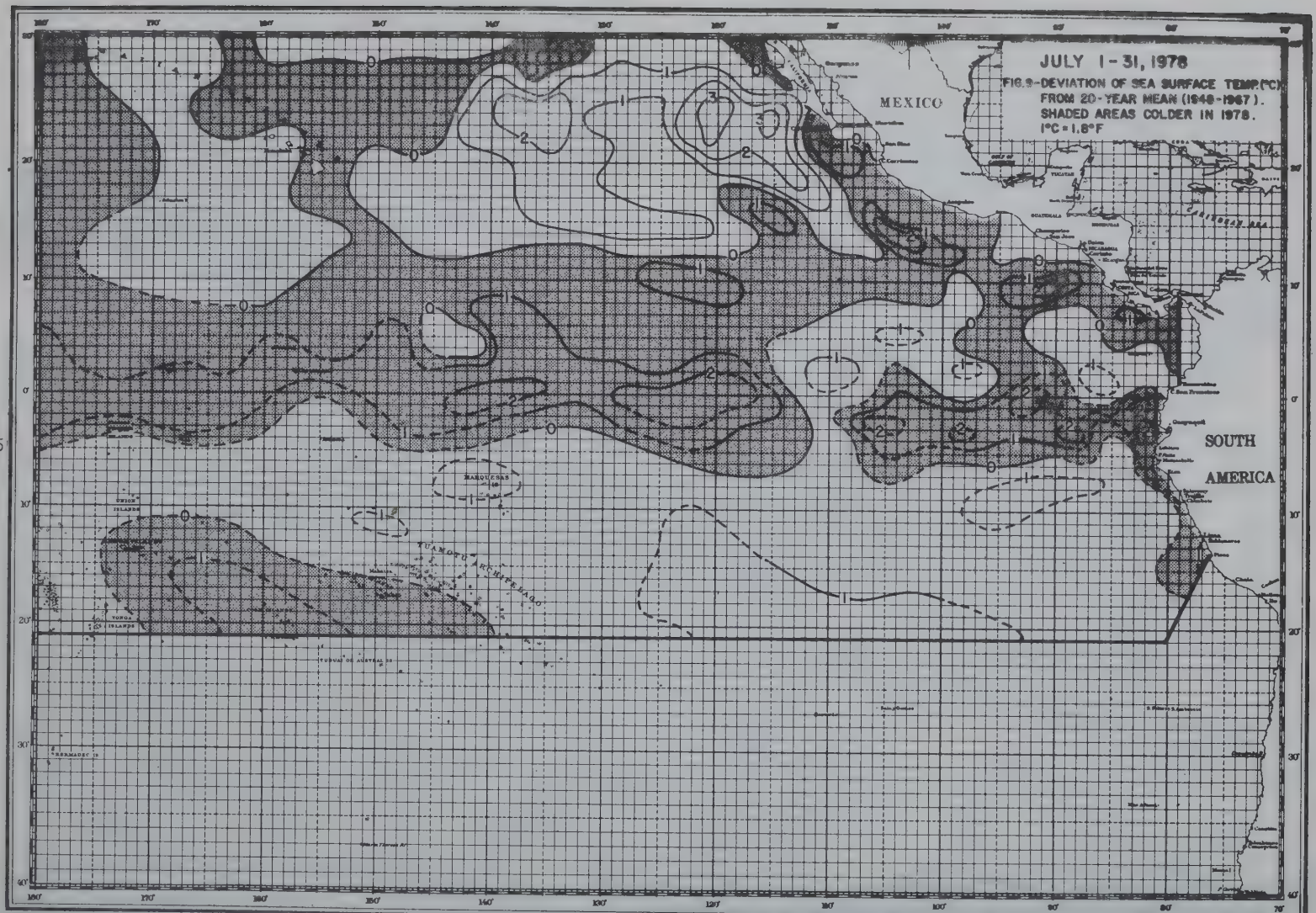
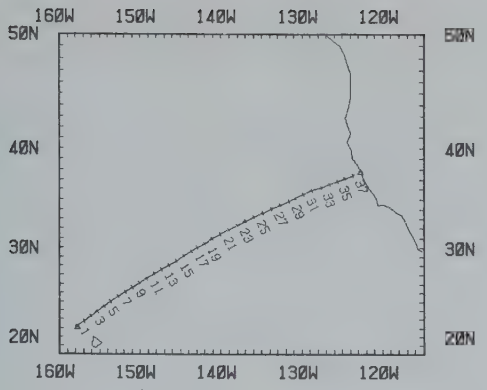

JULY 1 - 31, 1978
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C) FROM 20-YEAR MEAN (1948-1967). SHADED AREAS COLDER IN 1978. 1°C = 1.8°F
MEXICO
SOUTH AMERICA
MARQUESAS IS.
TUAMOTU ARCHIPELAGO
UNION ISLANDS
TOKUA ISLANDS
TUBUAI OR AUSTRAL IS.
BERMUDEZ IS.

FIGURE 10



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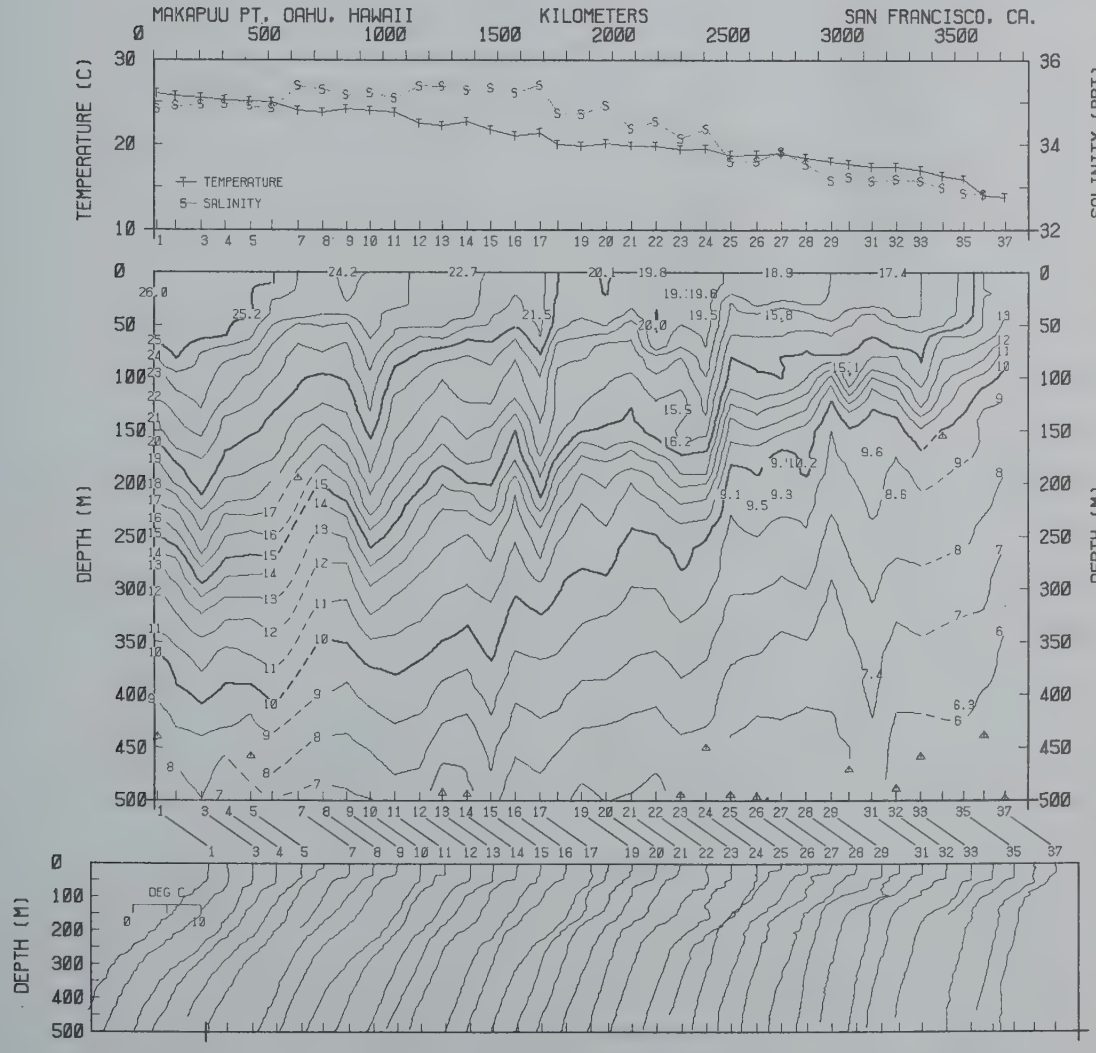

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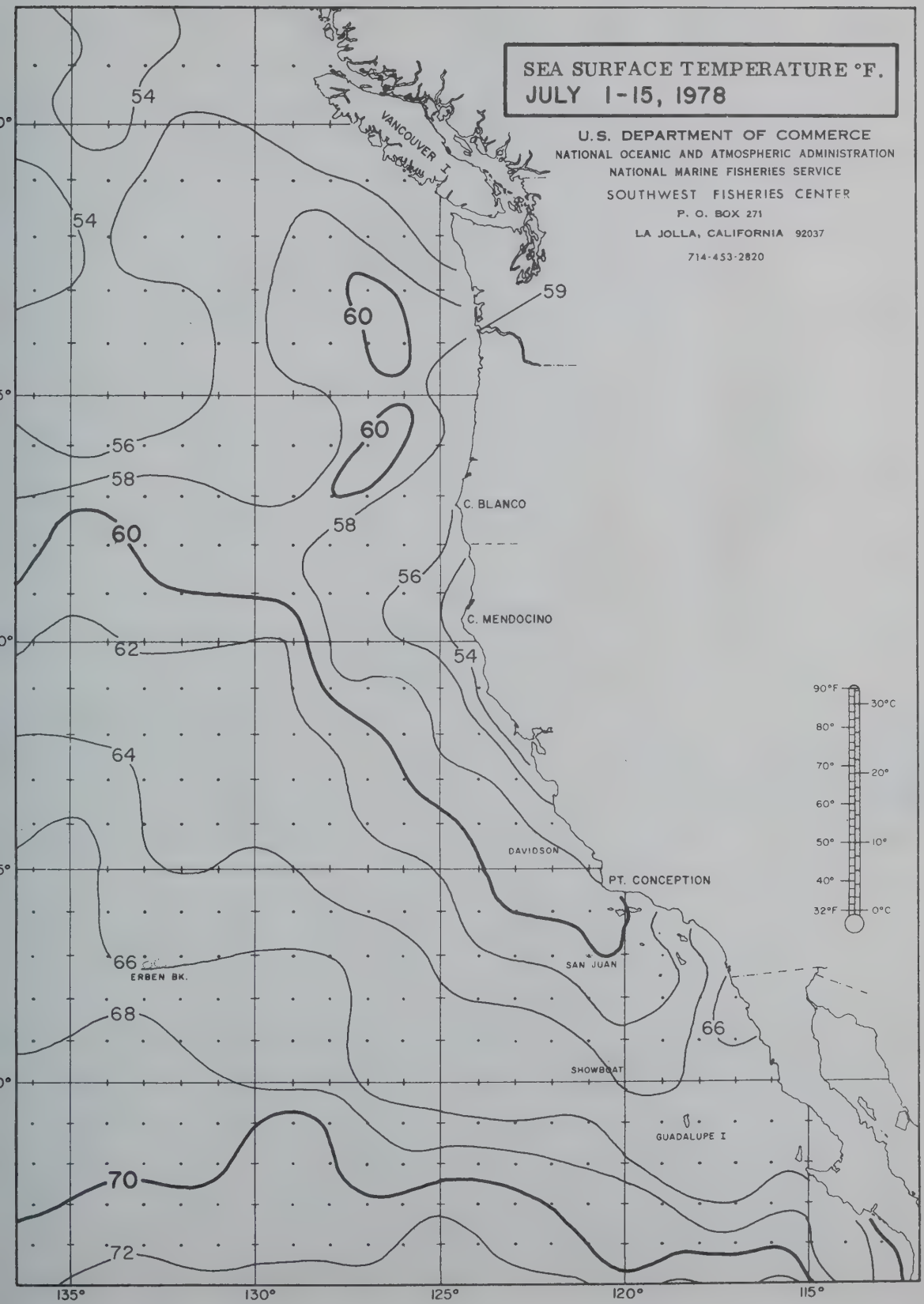

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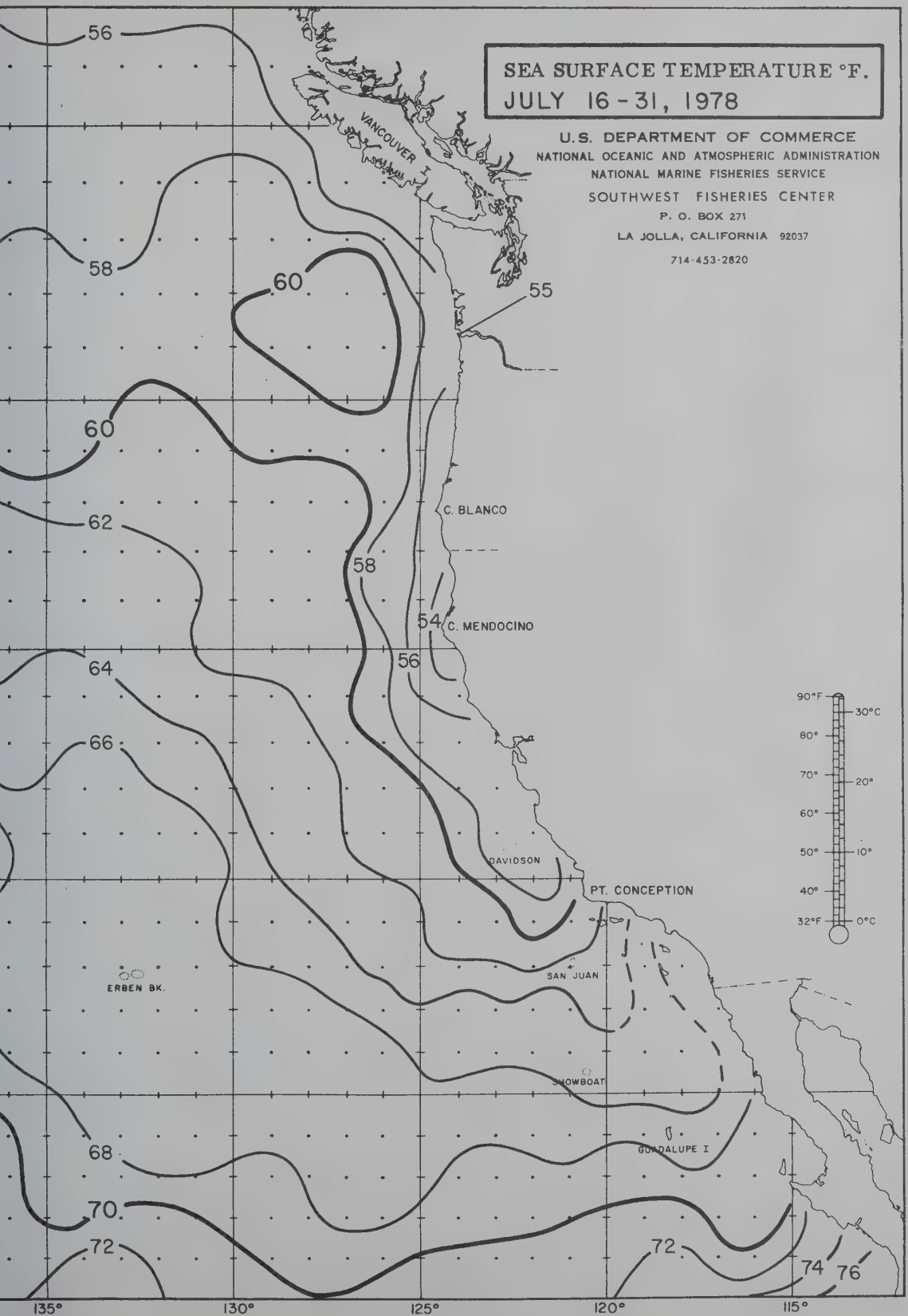

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NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

BULLETIN No. 78-2

SCATTERED EARLY SEASON CATCHES FROM BAJA CALIFORNIA TO OREGON

A contract price of $1220/ton of albacore delivered to the canneries was reached by the Western Fishboat Owners sociation (WFOA) and the canneries of the Pacific coast on June 6, and the albacore season got off to an early art. The first substantial catches of better than 100 fish per day were reported by a boat in the Erben Bank area early June. Subsequently, more jigboats headed west to the Erben Bank vicinity and reported catches of mostly -100 fish while fishing offshore and north of Erben Bank through June and the first few days of July. Meanwhile, ats fishing south of San Diego also reported catches of up to 50 fish in early June and small catches were made uth of the Davidson Seamount in late June. In early July a jigboat found albacore in the Boutelle Seamount area d scores of 100-200 fish were reported from this area until July 7 when catches decreased. Rough seas off central d northern California forced these boats to return to port. Those returning to central California harbors re- rted 40-50 fish catches off these areas. During this same period and through the second week of July, other jig- ats were also reporting scattered catches of better than 100-200 fish and as high as 400 from Pt. Conception to int Arena. Elsewhere in the second week of July, catches from 70-80 miles south of San Diego improved and jigboats ores have been generally 60-100 fish a day. These fish averaged 16-22 pounds (7.3-10.0 kg). In other areas, ats were reported fishing near the Jackson Seamount with some success in the second week of July.

Two commercial albacore boats were chartered to do scouting and tagging work off the Pacific coast during this ason. The Oregon Department of Fish and Wildlife hired the M/V New Dawn to scout for albacore between Astoria d the California-Oregon border from July 5-14. Surface water temperatures were mostly 59-62°F (15.0-15.7°C) out approximately 150 miles offshore and catches of 5 and 4 albacore were made in the Jackson Seamount vicinity on ly 8-9. On July 12, however, a score of 49 albacore was taken 130 miles west of Newport and a 20-fish catch was ported south of the "dumping grounds" off the Columbia River on July 13. These fish averaged about 14 pounds .4 kg). The second chartered vessel, M/V Linda, is currently working off Baja California and has been tagging bacore for the National Marine Fisheries Service (NMFS) and American Fishermen's Research Foundation (AFRF) since e third week of June. The Linda has tagged approximately 300 fish and will be tagging albacore from northern Baja lifornia to central California until mid-September. The Linda is on charter to the AFRF.

San Diego sportboats began fishing for albacore off Baja California in mid-June with limited success; but tches, fishing effort and passenger counts have gradually increased and during most of the second week of July, e sportboats out of Municipal Landing averaged 1-3 fish per passenger. These boats worked in an area approximately -80 miles south of San Diego and made catches on albacore of predominantly 15-30 pounds (6.8-13.6 kg).

The jigboats Cornucopia, Jinita, Three Jacks and Typhoon are on charter to the AFRF and Pacific Tuna Develop- nt Foundation (PTDF) and have been fishing north of Midway Island with good success since late May. Generally, ese boats have worked in three areas with excellent results. From May 28 - June 8, three boats fished between 34- °N latitude, 174-176°W longitude, and had catches of mostly 100-400 fish a day per boat on 16-18 pound (7.3-8.2 kg) sh. Fishing slowed after this period and the Cornucopia, Jinita and Typhoon left for refueling at Midway Island refueling and unloading of albacore in Honolulu. The Three Jacks, meanwhile, had left Seward, Alaska in early ne and had catches of 100 fish or more a day from June 21-28 in the area of 38-40°N latitude, 171-174°W longitude. ter refueling in Midway, the Jinita and Typhoon rejoined the Three Jacks and on June 27-28 reported 136-221 fish ores. The albacore in this area were mostly 18-20 pounds (8.2-9.1 kg) during June 21-25; but by June 26-28, the ats were catching albacore which averaged 12-14 pounds (5.5-6.4 kg). Catches decreased after June 28 and the ats began to search for more fish. Although there were days between June 28 - July 2 where the three boats had arly 100 fish or more, catches were not consistent on fish of 5-20 pounds (2.3-9.1 kg). From July 3-16, however, tches in the area 38-41°N latitude, 175-176°30'W longitude have been excellent with a high score of approximately 0 fish recorded and 200-400 fish catches common. These fish were averaging 15-18 pounds (6.8-8.2 kg). On July 7 e Jinita and Typhoon had reached their holding capacities and left to unload their fish in Hawaii. Also, the rnucopia, which unloaded its fish in Hawaii earlier, had returned to the fishing ground. Another jigboat had so joined the chartered boats.

Sea surface temperatures (SST) during the last half of June and the first half of July were 1-2°F (0.6-1.1°C) ove normal nearly everywhere off the U.S. west coast except for a narrow area (about 100 miles wide) from 35°N 40°N where SSTs have been below normal for the past month. The center of the eastern Pacific high pressure system s located near 40°N, 140°W during the first half of July with a strong ridge of high pressure extending northeast om the high center into Washington and Oregon. Surface winds were below normal along the U.S. northwest coastal gions and SSTs were above normal. However, from Cape Mendocino to Point Arguello, strong surface winds persisted fshore beyond 60 miles, and SSTs inshore were below normal south of 40°N where coastal upwelling and wind mixing s intense until about June 12, 1978. From June 13-15 the high pressure center moved westward to about 40°N, 160°W d surface winds along the coast south of Cape Mendocino decreased significantly.

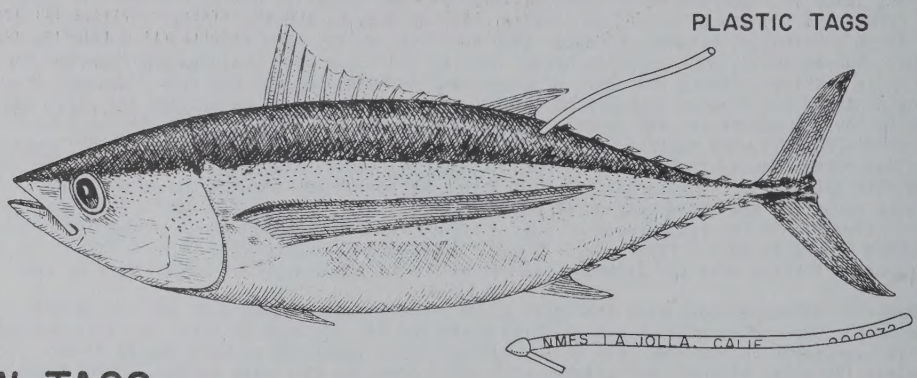
The Long Range Prediction Group, National Weather Service, Washington, D.C. forecasts the last half of July to ve slightly above-normal pressures and temperatures over the northwest coastal areas with a weak low pressure ough persisting off the California coast. The eastern Pacific high pressure center will have lower central essures and coastal northerly winds should be weaker during the last half of July than during the first half. is suggests that SSTs will continue to be slightly above normal offshore more than 100 miles. Near shore, from pe Mendocino to 35°N, SSTs will remain slightly below normal. Seasonal warming in SSTs can be expected along most the U.S. west coast out to 130°W. Therefore, only the seasonal changes in the SSTs should modify the existing T pattern (see SST chart for June 1-15, 1978).

Staff, Albacore Fishery Program
R. Michael Laurs, Leader

uly 17, 1978

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNED

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

BULLETIN No. 78-3

ALBACORE JIGBOATS FISHING FROM BAJA CALIFORNIA TO WESTPORT, WASHINGTON

Scattered catches were made from northern Baja California to Westport, Washington during the last half of July. he jigboats 60-80 miles south of San Diego and in the vicinity of 31°N latitude, 119°W longitude produced few good atches of more than 300 fish a day; however, fishing was spotty and scores were mostly 30-100 fish per day per boat. nitially, the albacore found in waters south of San Diego averaged 20-22 pounds (9.1 - 10.0 kg); but when the boats ished to the southwest of San Diego in the last week of July, their catches included smaller 13-15 pound (5.9 - .8 kg) fish.

In the areas north of Point Conception, rough seas and strong winds hindered fishing effort and reduced catches. n the third week of July, some good jigboat scores of up to 400 fish a day were reported within 50 miles of shore ff Morro Bay and catches of greater than 400 fish a day were also heard from boats fishing outside 150 miles off ape Blanco. Rough seas then restricted fishing effort off northern California and Oregon for a few days. However, hen boats were able to fish in the last week of July, good catches of about 200 fish per day per boat were made off ape Blanco and scattered catches were reported off Ft. Bragg, Heceta Head, the Columbia River and Westport, ashington. Meanwhile, weather conditions were better off Morro Bay in the third week of July and fishing was spotty. owever, winds increased and scores decreased to mostly 20-50 fish per day on many 8-10 pound (3.6 - 4.5 kg) albacore n the last quarter of July.

The American Fishermen's Research Foundation's (AFRF) chartered baitboat, Linda, worked off northern Baja alifornia during most of July and, to date, has tagged approximately 460 fish. The Linda has left southern alifornia and is now tagging albacore in the Morro Bay area.

San Diego sportboats reported inconsistent fishing from July 17 to July 30 as boats fished south of San Diego, hen to the southwest and back south again. The daily catch per angler varied from less than one albacore to more han two. Much of the catches remained on albacore averaging 18-20 pounds (8.2 - 9.1 kg).

The AFRF's and Pacific Tuna Development Foundation's (PTDF) chartered vessels, Cornucopia and Three Jacks, con- inued to fish north of Midway Island with some success in the last 2 weeks of July. Although catches were not as ood as the previous 2 weeks, scores were generally between 50-175 fish a day per boat on albacore averaging 9-18 ounds (4.1 - 8.2 kg). The primary area of fishing for the two chartered vessels and one other jigboat was 39-42°N atitude, 175°30'W - 179°30'E longitude and surface water temperatures reported were 62-65°F (16.7 - 18.1°C). On uly 20, the Three Jacks left the fishing area to return to Honolulu. Meanwhile, the Cornucopia continued to work orthwestward and the AFRF-PTDF chartered vessels, Jinita and Typhoon, left Honolulu to rejoin the Cornucopia.

During the last half of July the eastern Pacific high pressure system dominated the surface circulation from he west coast of North America out to 140°W. From July 15 to July 20 the high pressure center was more intense han normal along 140°W. As a result, surface winds were usually strong from Cape Blanco to Point Arguello and estward several hundred miles. Near shore, along southern California and Baja California, winds and seas were ighter than north of 35°N during most of the last half of July. After July 20 the eastern Pacific high pressure enter shifted westward from 140°W and fishing weather along the entire U.S. west coast and Baja was improved in ost areas after July 20. However, offshore from 35°N to 42°N, strong winds prevailed and made fishing difficult. ea surface temperatures (SST) were below normal over most coastal areas north of Point Arguello. Also, SSTs were lightly below normal from 32°N to 42°N between 125°W and 135°W. The below-normal SSTs resulted from coastal up- elling and offshore ocean mixing by strong surface winds. The large offshore area covered by above-normal SSTs n June decreased in size in July. The only area with SSTs more than 2°F above normal was south of 30°N between aja California and 125°W.

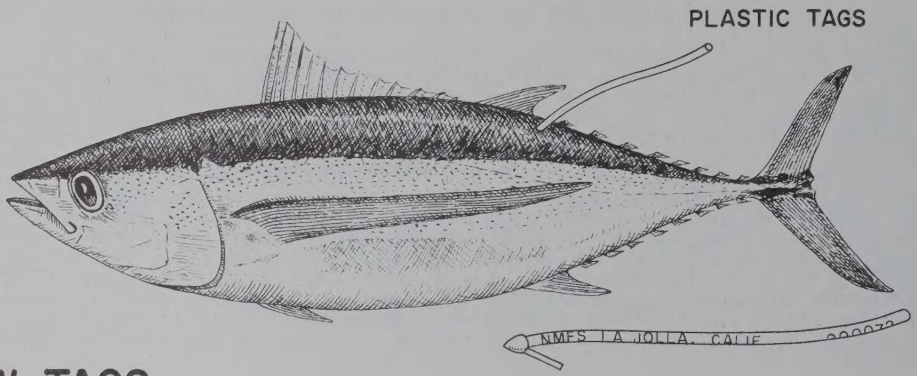
The Long Range Prediction Group, National Weather Service, indicated that the high pressure system and the urface wind circulation over the fishing grounds will not change much from the present conditions during the first 5 days in August. Therefore, except for seasonal warming, the SST pattern and fishing weather conditions are ex- ected to be similar to the last 10 days in July.

uly 31, 1978

Staff, Albacore Fishery Program
R. Michael Laurs, Leader

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

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